A New Binary Star.

The bright star 46 *Tauri* (R. A. $4^h\ 8^m\ 10^s$, Decl. $+7°\ 28'$, 5.3 magnitude) was found to be an unusually close double star when examined with the 36-inch telescope on November 18, 1908. The mean of two nights' measures is:—

1908.90 315°.4 0″.14, 5.7–6.2 magnitudes.

On the first night the telescope was west of pier, on the second night east, and the two angle measures agree within 0°.3, the distance measure on each night being 0″.14. As the star is assigned the proper motion of $-0^s.0020$ and $+0''.023$ in R. A. and Decl. respectively, or 0″.038 in the direction 307°.7, it is obvious that this is a physical system; otherwise it would have been discovered long ago.

Another pair, equally close but fainter, discovered on the same night, is A. G. Berlin B 455 (R. A. $1^h\ 24^m\ 13^s$, Decl. $+22°\ 19'$, magnitude 6.5). The chances are hundreds to one that it also is a binary system, though the star catalogues do not assign it any proper motion. Measures on two nights give:—

1908.90 126°.2 0″.14, 6.7–7.2 magnitudes.

The two angle measures, made on opposite sides of the meridian, agree within 0°.9, and the distances within 0″.01.

November, 1908. R. G. Aitken.

The Carnegie Institution Observing Station in the Southern Hemisphere.

Director Lewis Boss, of the Dudley Observatory, Albany, and Astronomer Tucker, of the Lick Observatory, sailed from New York last August to Argentina to establish the observing station referred to in the title. The instrumental equipment is to consist chiefly of the Dudley Observatory meridian circle, and the purpose is to observe the accurate positions of all bright stars down to the seventh magnitude, in order to supplement Professor Boss's exactly similar work at Albany, thus making his programme cover the entire sky. The observations to be secured will be utilized in combination and comparison with all similar observations of the same stars made in earlier

years, to determine the positions and the proper motions of the stars. This plan, embracing every star in the entire sky down to the seventh magnitude, is one of the most extensive and ambitious recorded in the history of astronomy; and there is full confidence that the results will be correspondingly valuable.

The site for the observing station was fixed at a point about a kilometer from the center of the city of San Luis, in the west-central part of Argentina. Professor Boss has written that the government officials and the people have been most sympathetic with his aims. The site was provided by the National Government on national property, and in many other ways definite assistance was afforded. Building operations were well under way within two weeks after the astronomers landed in Buenos Aires. Professor TUCKER will be astronomer in charge of the observing station during the three years of work planned for. He will have a large corps of assistants in order that the instrument may be kept busy and the calculations be made promptly.

Albany newspapers report that the ship on which Professor Boss took homeward passage was wrecked shortly after leaving Buenos Aires, and if the reports are trustworthy there must have been cause for great anxiety for a day or two.

W. W. CAMPBELL.

PHOTOGRAPHIC DEFINITION FROM LIGHT OF DIFFERENT WAVE-LENGTHS.

The large size of the photographic images of stars obtained with telescopes of sixty to seventy feet focal length, has led the writer to look for means of reducing them.

Without going into the matter of "seeing" deeply, it may be said that, in all probability, the character of the images depends almost wholly upon *atmospheric refraction*. Assuming this to be the case, star images, for example, formed by yellow light should be much less affected by disturbances of the atmosphere, and consequently be smaller than images formed by light of the short wave-lengths (blue and violet), which affect the ordinary photographic plate most.